Claims

[c1] What is claimed is:

1.An optical mouse comprising:

a housing having a flat bottom surface and a first opening on the bottom surface;

a roller ball rotatably disposed inside the housing;

a light source disposed inside the housing for generating light to illuminate the roller ball;

a light sensor disposed inside the housing for receiving light reflected from the roller ball; and

control circuitry disposed inside the housing for controlling operations of the optical mouse;

wherein when a user moves the housing against a flat surface, the roller ball will be rotated by engaging with the flat surface and the control circuitry is capable of generating corresponding pointing signals by detecting variations of light received by the light sensor.

[c2] 2.The optical mouse of claim 1 further comprising an optical device for alternating an optical path of the light generated by the light source.

[c3] 3.The optical mouse of claim 2 wherein the optical device comprises a first lens set for projecting the light generated by the light source onto the roller ball.

[c4] 4.The optical mouse of claim 2 wherein the optical device comprises a second lens set for projecting the light reflected from the roller ball to the light sensor.

[c5] 5.The optical mouse of claim 1 wherein the control circuitry is disposed on a circuit board, the circuit board having a second opening for passing the light reflected from the roller ball to the light sensor.

[c6] 6.The optical mouse of claim 1 further comprising an elastic device and at least one roller wheel, wherein the elastic device elastically pushes the roller ball against the roller wheel.

[c7] 7.The optical mouse of claim 6 comprising two roller wheels which are pushed by the roller ball when the roller ball is pushed by the elastic device.

[c8] 8.The optical mouse of claim 1 wherein the roller ball has a graphed surface so that the light received by the light sensor has different intensities.

[c9] 9.The optical mouse of claim 1 wherein the roller ball has a rough surface so that the light received by the light sensor has different intensities.